

**CLAIMS**

1. An aminofunctional silicone resin comprising the units:

$(R_3SiO_{1/2})_a$  (i)

$(R_2SiO_{2/2})_b$  (ii)

5  $(RSiO_{3/2})_c$  (iii) and

$(SiO_{4/2})_d$  (iv)

wherein R is independently an alkyl group, an aryl group, or an aminofunctional hydrocarbon group, a has a value of less than 0.4, b has a value of greater than 0.15, c has a value of greater than zero to 0.7, d has a value of less than 0.2, the value of  $a + b + c + d = 1$ , with the  
10 provisos that 3 to 50 mole percent of silicon atoms contain aminofunctional hydrocarbon groups in units (i), (ii) or (iii), the  $-NH-$  equivalent weight of the aminofunctional silicone resin is from 100 to 1500, the aminofunctional silicone resin is in the form of a neat liquid, solution, or meltable solid, greater than 20 weight percent of unit (ii) is present in the aminofunctional silicone resin, less than 10 weight percent of unit (ii) are  $Me_2SiO_{2/2}$  units in  
15 the aminofunctional silicone resin, and greater than 50 weight percent of silicon-bonded R groups are silicon-bonded aryl groups.

2. An aminofunctional silicone resin comprising the units:

( $R_3SiO_{1/2}$ )<sub>a</sub> (i)

( $R_2SiO_{2/2}$ )<sub>b</sub> (ii)

( $RSiO_{3/2}$ )<sub>c</sub> (iii) and

5 ( $SiO_{4/2}$ )<sub>d</sub> (iv)

wherein R is independently an alkyl group, an aryl group, or an aminofunctional hydrocarbon group, a has a value of less than 0.4, b has a value of greater than 0.15, c has a value of greater than zero to 0.7, d has a value of less than 0.2, the value of  $a + b + c + d = 1$ , with the provisos that 3 to 50 mole percent of silicon atoms contain aminofunctional hydrocarbon groups in units (i), (ii) or (iii), the  $-NH-$  equivalent weight of the aminofunctional silicone resin is from 100 to 1000, the aminofunctional silicone resin is in the form of a neat liquid, solution, or meltable solid, greater than 20 weight percent of unit (ii) is present in the aminofunctional silicone resin, less than 10 weight percent of unit (ii) are  $Me_2SiO_{2/2}$  units in the aminofunctional silicone resin, and greater than 50 weight percent of silicon-bonded R groups are silicon-bonded aryl groups.

3. An aminofunctional silicone resin according to Claim 1 or 2 wherein R is independently selected from methyl, phenyl, or an aminofunctional hydrocarbon group having the formula  $R^1NHR^2$  or  $-R^1NHR^1NHR^2$  wherein each  $R^1$  is independently a divalent hydrocarbon radical having at least 2 carbon atoms and  $R^2$  is hydrogen or an alkyl group.

4. An aminofunctional silicone resin according to any of Claims 1 - 3 wherein the aminofunctional hydrocarbon groups are selected from -CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>,  
-CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, -CH<sub>2</sub>CHCH<sub>3</sub>NH, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>,  
-CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>,  
5 -CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>3</sub>, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>3</sub>, -CH<sub>2</sub>(CH<sub>3</sub>)CHCH<sub>2</sub>NHCH<sub>3</sub>,  
-CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>3</sub>, -CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>,  
-CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>,  
-CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>NHCH<sub>3</sub>, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>3</sub>,  
-CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>3</sub>, and  
10 -CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>.

5. An aminofunctional resin according to Claim 1 or 2 wherein the aminofunctional silicone resin is selected from

aminofunctional silicone resins comprising the units:

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- 5 (ii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$
- (iii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- (iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

aminofunctional silicone resins comprising the units:

- (i)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$
- 10 (ii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- (iii)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

aminofunctional silicone resins comprising the units:

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- (ii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- 15 (iii)  $(\text{RSiO}_{3/2})_c$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- (iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

aminofunctional silicone resins comprising the units:

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- (ii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- 20 (iii)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$

or

aminofunctional silicone resins comprising the units:

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- (ii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$
- 25 (iii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- (iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$
- (v)  $(\text{SiO}_{4/2})_d$

wherein a, b, c, and d are as defined above.

6. An aminofunctional resin according to Claim 1 or 2 wherein the aminofunctional silicone resin is selected from

aminofunctional silicone resins comprising the units:

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- 5 (ii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$
- (iii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- (iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

aminofunctional silicone resins comprising the units:

- (i)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$
- 10 (ii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- (iii)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

aminofunctional silicone resins comprising the units:

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- (ii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- 15 (iii)  $(\text{RSiO}_{3/2})_c$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- (iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

aminofunctional silicone resins comprising the units:

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- (ii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- 20 (iii)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$

aminofunctional silicone resin comprising the units

- (i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$
- (ii)  $(\text{CH}_3)_2\text{SiO}_{2/2})_b$
- (iii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$
- 25 (iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$

aminofunctional silicone resin comprising the units:

(i)  $((\text{CH}_3)_2\text{RSiO}_{1/2})_a$  where  $\text{R} = -\text{CH}_2(\text{CH}_3)\text{CHCH}_2\text{NHCH}_3$

(ii)  $(\text{CH}_3)_2\text{SiO}_{2/2})_b$

(iii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$

5 (iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$

aminofunctional silicone resins comprising the units:

(i)  $((\text{CH}_3)_2\text{RSiO}_{1/2})_a$  where  $\text{R} = -\text{CH}_2(\text{CH}_3)\text{CHCH}_2\text{NHCH}_3$

(ii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$

(iii)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

10 aminofunctional silicone resins comprising the units:

(i)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2(\text{CH}_3)\text{CHCH}_2\text{NHCH}_3$

(ii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$

(iii)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$ ,

aminofunctional silicone resins comprising the units:

15 (i)  $((\text{CH}_3)_2\text{RSiO}_{1/2})_a$  where  $\text{R} = -\text{CH}_2(\text{CH}_3)\text{CHCH}_2\text{NHCH}_3$

(ii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$

(iii)  $(\text{SiO}_{4/2})_d$ , or

aminofunctional silicone resins comprising the units:

(i)  $((\text{CH}_3)_3\text{SiO}_{1/2})_a$

20 (ii)  $(\text{C}_6\text{H}_5(\text{CH}_3)\text{SiO}_{2/2})_b$

(iii)  $((\text{CH}_3)\text{RSiO}_{2/2})_b$  where  $\text{R} = -\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$

(iv)  $(\text{C}_6\text{H}_5\text{SiO}_{3/2})_c$

(v)  $(\text{SiO}_{4/2})_d$

wherein a, b, c, and d are as defined above.

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7. An emulsion composition comprising:

(A) an aminofunctional silicone resin of any of claims 1-6;

(B) at least one surfactant; and

(C) water.

8. An emulsion composition according to Claim 7 wherein a has a value of 0.1 to 0.3, b has a value of 0.2 to 0.4, c has a value of 0.2 to 0.5, d has a value of 0, 10 to 30 mole percent of silicon atoms contain aminofunctional hydrocarbon groups in units (i), (ii) or (iii), the -NH- equivalent weight of the aminofunctional silicone resin is from 150 to 350, 20 to 50 weight percent of unit (ii) is present in the aminofunctional silicone resin, 0 to 5 weight percent of unit (ii) are  $\text{Me}_2\text{SiO}_{2/2}$  units in the aminofunctional silicone resin, and from 50 to 75 weight percent of silicon-bonded R groups are silicon-bonded aryl groups.

9. An emulsion composition according to Claim 7 or 8 wherein the surfactant is selected from anionic surfactants, cationic surfactants, nonionic surfactants, amphoteric surfactants, or a combination thereof.

10. An emulsion composition according to any of Claims 7-9, wherein the emulsion composition further comprises at least one ingredient selected from fragrances, preservatives, vitamins, ceramides, amino-acid derivatives, liposomes, polyols, botanicals, conditioning agents, glycols, vitamin A, vitamin C, vitamin E, Pro-Vitamin B5, sunscreen agents, humectants, preservatives, emollients, occlusive agents, esters, pigments, or self-tanning agents.

11. An emulsion composition according to any of Claims 8-10, wherein the emulsion is in the form of spray-dried composite particles.